REMARKS

Claims 11-33 are currently pending in this application, as amended. Claims 11 and 18 have been amended to more particularly point out and distinctly claim the invention. Claims 18-19 and 24 have been amended to depend from claim 11. Claim 25 has been amended to depend from claim 21. Claims 28-33 have been added. Support for the new claims can be found at least in the original claims, the figures (Figs. 1, 5 and 7, among others) and in the original Specification at page 7, line 13 – page 8, line 22; page 9, lines 1-8; page 10, line 9 – page 11, line 23; page 14, lines 1-25; page 15, lines 2-21; and page 18, line 14 – page 20, line 16. Claims 28-31 include the language of original dependent claims 7-10, respectively, and claim 28 also includes the language of original independent claim 1. Accordingly, no new matter has been added.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 11-27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of U.S. Patent No. 6,515,763 ("Dermer *et al.*," hereinafter, "Dermer") and U.S. Patent No. 6,490,055 ("Shimizu"). The Examiner asserts that Dermer teaches a printing data processor comprising a printing data memory and an editing processing part. But, the Examiner acknowledged that Dermer <u>fails</u> to teach that the printing data is judged based on the page state information and a printing process performed. However, the Examiner contends that Shimizu teaches that the printing data is judged based on the page state information and a printing process performed. It is the Examiner's position that it would have been obvious to modify the system of Dermer so that the printing data is judged based on the page state information and a printing process performed as taught by Shimizu.

Withdrawal of the rejections of claims 11-27 is respectfully requested in view of the foregoing amendments and for at least the following reasons.

Present Invention

The present invention is directed to a printing data processor including a printing data memory that stores printing data. The printing data being output from a host in the form of a page description language and corresponding to a plurality of pages. The printing data

processor also includes an editing process part that edits the printing data into intermediate data corresponding to the plurality of pages and generates page state information corresponding to the intermediate data. A printing control of each of the plurality of pages is updated based on the page state information.

In another embodiment, the present invention is directed to a printing data processor including an editing process part for receiving printing data in the form of a page description language from a host and editing the received printing data into intermediate-form printing data which is between the form of a page description language and a printable bit image form. The editing process part is configured to analyze portion-printing-mode information corresponding to intermediate-form printing data and then generate page-memory-setting information which corresponds to the intermediate-form printing data; an intermediate-form printing data memory for storing intermediate-form printing data. The printing data processor also includes an expansion process part for expanding intermediate-form printing data to bit image form. The editing process part has an expansion-use memory that is adjusted based upon the page-memory-setting information.

Dermer

Dermer discloses a method of trapping objects in a page description language file associated with a page that includes identifying sequential matching objects including determining whether shapes for sequential objects match to determine whether sequential objects are matching, combining into a larger object matching sequential objects including parameterizing each object as a band in the larger object and trapping non-matching objects and the larger object. Dermer also discloses a method of preparing a page to be printed that includes receiving a page description language file describing the page to be printed, identifying sequential matching objects in the page description file that represent a gradient to be printed on the page and combining into a larger object matching sequential objects. The step of combining includes defining an outline for the object and a defining a function describing the coloring for the object.

<u>Shimizu</u>

Shimizu discloses a color printer that includes an input unit for inputting color page description information, creation means for creating intermediate information for recording by analyzing color page description information which has been input, an execution unit for executing fast hardware rendering with a hardware for the intermediate information, and a switch for switching the fast hardware rendering into a software rendering in the case of a high grade color logical drawing which cannot be supported by the hardware. The printer hardware, in some embodiments, uses a "banding process" without the use of a full multi-value bit map memory and uses a "degrade method" in other embodiments. A "hard renderer" (hardware rendering circuit) 9 performs the rendering process in real time synchronously with the video transfer of a printer engine 13 of a color printer by performing a color rendering process with ASIC hardware, thereby implementing the banding process with smaller memory capacity. A page (band) buffer 10 is an area for storing the image expanded by PDL language, for which it is necessary to reserve a memory of 2 bands at minimum (page width*256 or band height of about 512*3 (RGB) or 4 (YMCK) as the number of planes*bit depth) to permit the banding process, or a full-color bit map memory with lower resolution and/or color gradation in the apparatus requiring the image to be transferred synchronously with the printer engine, such as a laser beam printer, when the banding process is disenabled. FIG. 3 is a format in storing intermediate data created as a result of interpreting PDL data into the management RAM 7, in which after such information of one page is stored, the rendering process is executed for each of R, G and B planes via a paper exhausting instruction (i.e., Form Feed) to create a color image.

<u>Claim 11</u>

Claim 11, as amended, recites, *inter alia*:

> an editing process part data that <u>edits the printing data into</u>
> <u>intermediate data corresponding to the plurality of pages</u> and generates
> page state information corresponding to the intermediate data,
> wherein <u>a printing speed control of each of the plurality of pages is</u>
> <u>updated based on the page state information</u>.

Dermer, or Dermer modified by Shimizu, each fails to disclose or suggest a printing data processor with an editing process part that edits the printing data into intermediate data

corresponding to a plurality of pages and generates page state information corresponding to the intermediate data wherein a printing speed control of each of the plurality of pages is updated based on the page state information.

At best, Dermer discloses specific methods for trapping objects in a page from a page description language file by identifying sequential matching objects and combining sequential matching objects. Shimizu fails to compensate for the deficiencies of Dermer. Shimizu discloses a rendering process for color printers that is executed for each of R, G and B planes via a paper exhausting instruction to create a color image.

To establish *prima facie* obviousness of a claimed invention, all the claimed limitations must be taught or suggested by the prior art. MPEP § 2143.03.

Even if Dermer were modified to include the "Hard Render", "Band Rendering" and "Color Logic Drawing" of Shimizu, the modified Dermer device would still not disclose each an every element of claim 11, which includes an editing process part that edits the printing data into intermediate data corresponding to a plurality of pages and generates page state information corresponding to the intermediate data wherein a printing speed control of each of the plurality of pages is updated based on the page state information.

Thus, all the claimed elements of amended claim 11 are not disclosed by the modified Dermer device. Applicant therefore respectfully submits that amended claim 11 is therefore not obvious under 35 U.S.C. § 103(a) in view of the combination of Dermer and Shimizu. Dependent claims 12-27 depend from amended independent claim 11. Accordingly, Applicant respectfully requests that the rejection of claims 11-27 under 35 U.S.C. § 103(a) be withdrawn.

Claim 28

New claim 28 recites, *inter alia*:

an expansion process part for expanding printing data of said
intermediate-form to the bit image form,
wherein said editing process part includes a register process part

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for analyzing printing data of said intermediate-form edited page by page
and adding page state data of each page to printing data of said
intermediate-form edited page by page, and

wherein said expansion process part includes <u>a plurality of
usagewise-separated register process parts for respective reproduction
modes of respective pages</u>, and <u>a selection process part for selecting a
usagewise-separated register process part suitable for said page state from
said plurality of usagewise-separated register process parts according to
said page state data</u>.

Dermer, or Dermer modified by Shimizu, each <u>fails</u> to disclose or suggest an

expansion process part that includes a <u>plurality of usagewise-separated register process parts</u> for

respective reproduction modes of respective pages and <u>a selection process part for selecting a</u>

<u>usagewise-separated register process part</u> suitable for said page state from said plurality of

usagewise-separated register process parts according to said page state data. Accordingly, claims

28-31 are <u>not</u> obvious under 35 U.S.C. § 103(a) in view of the combination of Dermer and

Shimizu.

Claim 32

New claim 32 recites, *inter alia*:

an editing process part for receiving printing data in the form of a
page description language from a host and editing the received printing
data into intermediate-form printing data which is between the form of a
page description language and a printable bit image form, the editing
process part being configured to analyze portion-printing-mode
information corresponding to intermediate-form printing data and <u>then
generate page-memory-setting information which corresponds to the
intermediate-form printing data</u>;
an intermediate-form printing data memory for storing
intermediate-form printing data; and
an expansion process part for expanding intermediate-form
printing data to bit image form, the editing process part having an
<u>expansion-use memory that is adjusted based upon the page-memory-
setting information</u>.

Dermer, or Dermer modified by Shimizu, each <u>fails</u> to disclose or suggest a

printing data processor having an expansion process part for expanding intermediate-form

printing data to bit image form and that the editing process part has an <u>expansion-use memory</u>

that is adjusted <u>based</u> upon the <u>page-memory-setting information</u>. Accordingly, claim 32 is <u>not</u> obvious under 35 U.S.C. § 103(a) in view of the combination of Dermer and Shimizu.

<u>Claim 33</u>

New claim 33 recites, *inter alia*:

> an editing process part for receiving printing data in the form of a page description language from a host and editing the received printing data into intermediate-form printing data which is between the form of a page description language and a printable bit image form, the editing process part including
>> (i)   a register process part that detects page state data among the received printing data, page state data including, in increasing size in terms of memory, at least one of a monochrome binary type, a color binary type, a monochrome multi-binary type and a color multi-binary type, the register process part initially setting the page state data to correspond to the monochrome binary type and setting the page state data to correspond to the color binary type, the monochrome multi-binary type or the color multi-binary type only upon detection of one of those types so as to minimize a memory size used; and
>> (ii) a page state storage part that stores the page state data detected by the register process part after each page....

Dermer, or Dermer modified by Shimizu, each <u>fails</u> to disclose or suggest an editing process part including a register process part that detects page state data among the received printing data, page state data including, in increasing size in terms of memory, at least one of a monochrome binary type, a color binary type, a monochrome multi-binary type and a color multi-binary type, the register process part <u>initially setting the page state data to correspond to the monochrome binary type</u> and setting the page state data to correspond to the color binary type, the monochrome multi-binary type or the color multi-binary type only upon detection of one of those types <u>so as to minimize a memory size used</u>. Accordingly, claim 32 is <u>not</u> obvious under 35 U.S.C. § 103(a) in view of the combination of Dermer and Shimizu.

Allowable Subject Matter

Claims 28-31 include the language of original dependent claims 7-10, respectively, and claim 28 also includes the language of original independent claim 1. The Examiner previously indicated claims 7-10 would allowable if rewritten in independent form (Paper No. 5, p. 10). Reconsideration of the allowability of claims 28-31 (original claims 7-10) is therefore respectfully requested.
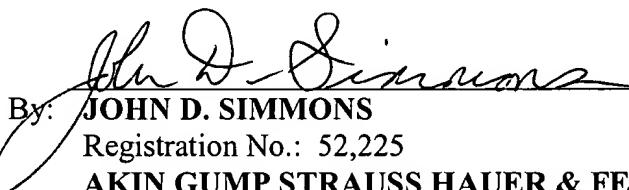
CONCLUSION

In view of the foregoing Amendments and Remarks, it is respectfully submitted that the present application, including claims 11-33, is in condition of allowance and such action is respectfully requested.

Respectfully submitted,

KOJI URASAWA

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(Date)

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